Welcome

Marco Zennaro, PhD
ICTP

Hello

Marco Zennaro, Research Officer, ICTP

Applied Physics → Telecommunications/ICT4D Lab

Focal Point of the ITU Centre of Excellence in IoT and Big Data and Statistics

Visiting Professor at Kobe Institute of Computing in Kobe, Japan

ICTP

Hello

Sebastian Büttrich

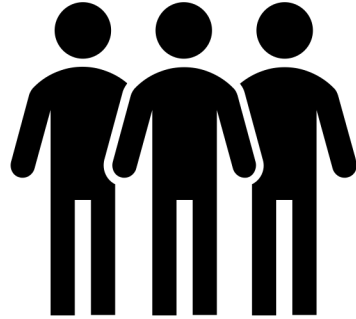Research Lab Manager, IT University of Copenhagen

Trainer & Network Developer, Network Startup

Resource Center

Founder, wire.less.dk

You?

Learning targets

Understanding IoT systems and their fundamental concepts, including the acquisition, transport and visualisation of sensor measurements.

Experimenting with the software part, without electronics, of an end-to-end IoT system based on IoT platforms.

Today

Intro to IoT (Marco Zennaro, ICTP)

Labs (Marco Zennaro and Sebastian Buettrich)

Intro to micro python; Pycom intro; Atom and alternatives; Blink

Sensors (acceleration, light, temperature)

Tuesday

Wireless standards for IoT (Sebastian Buettrich, ITU)

Introduction to Radio Planning (Tim Brown, CMU)

Labs (Marco Zennaro and Sebastian Buettrich)

Intro to MQTT; MQTT with mobile phone + laptop; WiFi: connect to WiFi network; Send MQTT via WiFi; Subscribe to MQTT

Wednesday

Intro to TTN (Sebastian Buettrich, ITU)

Labs (Marco Zennaro and Sebastian Buettrich)

Installing a gateway; LoRaWAN example: sending temperature via TTN

Ubidots TTN

Thursday

RPiDC: a data center in a RPi (Marco Zennaro, ICTP)

Labs (Marco Zennaro and Sebastian Buettrich)

Installing RPiDC; Using InfluxDB with Python

Friday

Coverage mapping (Sebastian Buettrich, ITU)

Optimal radio placement in LoRaWAN (Tim Brown, CMU)

Closing

GitHub

All material (slides, code, examples) will be available on this repository:

https://github.com/marcozennaro/smr-rwanda-2019

ICTP

Hands-on sessions

"Be excellent to each other", asking / helping is OK.

Google error messages to fix issues.

Coping blindly does not lead to new insight.

Reading other people's code helps a lot.

Books on IoT

A book is not required for this worksgop.

We will read individual articles on demand.

This Wiki has a list of books on a range of topics.

Feedback?

Email me mzennaro@ictp.it

ICTP